

DISCOVER-AQ OUTLOOK -- September 22, 2013

Today (Sunday) was a “no fly” day. A low-level cloud deck cleared from north to south this morning, but broken stratus appeared in the afternoon. There was a brisk northerly/northeasterly wind. The air quality was good for both ozone and PM, indicative of clean continental air.

Tomorrow (Monday) through Friday are potential fly days, but we will need to watch the cloud forecast as a pesky area of low pressure is lurking just off the Texas coast. Consequently, we will have a 6 am “go/no go” meeting to assess the cloud situation. The conditions will likely be similarly uncertain on Tuesday, which may require another 6 am meeting.

The surface flow will likely be northerly & northeasterly (continental air) until Thursday when winds will likely shift to southerly flow (marine air) as a front approaches the region. Early indications are that the weekend will be a washout.

9/22/2013 Weather Briefing

Ryan Stauffer

Recommendations

- Monday: **Fly Day.** Conditions not ideal, but have model uncertainty, low confidence in aggressive model cloud forecasts and northward progress of Gulf Low
- Tuesday: **Likely Fly.** Similar to Monday, weak low pressure that has been giving us the business lately is picked up by upper level trough late in the day.
- Wed/Thur...Fri?: **Probable Fly Days.** Upper level ridge takes control. Will have to watch timing of next cold front.
- **Note:** we will meet Monday 6am in Homewood Suites lobby to confirm Monday flight.

Conroe:

THIS AFTERNOON	TONIGHT	MONDAY	MONDAY NIGHT	TUESDAY	TUESDAY NIGHT	WEDNESDAY	WEDNESDAY NIGHT	THURSDAY
								
Sunny High: 84 °F	Partly Cloudy Low: 60 °F	Partly Sunny High: 88 °F	Mostly Cloudy Low: 65 °F	Partly Sunny High: 91 °F	Mostly Cloudy Low: 66 °F	Mostly Sunny High: 91 °F	Partly Cloudy Low: 71 °F	Slight Chc Thunderstorms High: 91 °F 20%

Houston Hobby:

THIS AFTERNOON	TONIGHT	MONDAY	MONDAY NIGHT	TUESDAY	TUESDAY NIGHT	WEDNESDAY	WEDNESDAY NIGHT	THURSDAY
								
Mostly Sunny High: 83 °F	Partly Cloudy Low: 65 °F	Slight Chc Thunderstorms High: 87 °F	Mostly Cloudy Low: 71 °F	Partly Sunny High: 90 °F	Mostly Cloudy Low: 71 °F	Partly Sunny High: 91 °F	Partly Cloudy Low: 76 °F	Slight Chc Thunderstorms High: 91 °F 20%

Galveston:

THIS AFTERNOON	TONIGHT	MONDAY	MONDAY NIGHT	TUESDAY	TUESDAY NIGHT	WEDNESDAY	WEDNESDAY NIGHT	THURSDAY
								
Mostly Cloudy High: 82 °F	Slight Chc Thunderstorms Low: 72 °F	Slight Chc Thunderstorms High: 85 °F	Slight Chc Thunderstorms Low: 79 °F	Slight Chc Thunderstorms High: 88 °F	Mostly Cloudy Low: 79 °F	Mostly Sunny High: 89 °F	Slight Chc Thunderstorms Low: 80 °F	Slight Chc Thunderstorms High: 87 °F 20%

Current Conditions

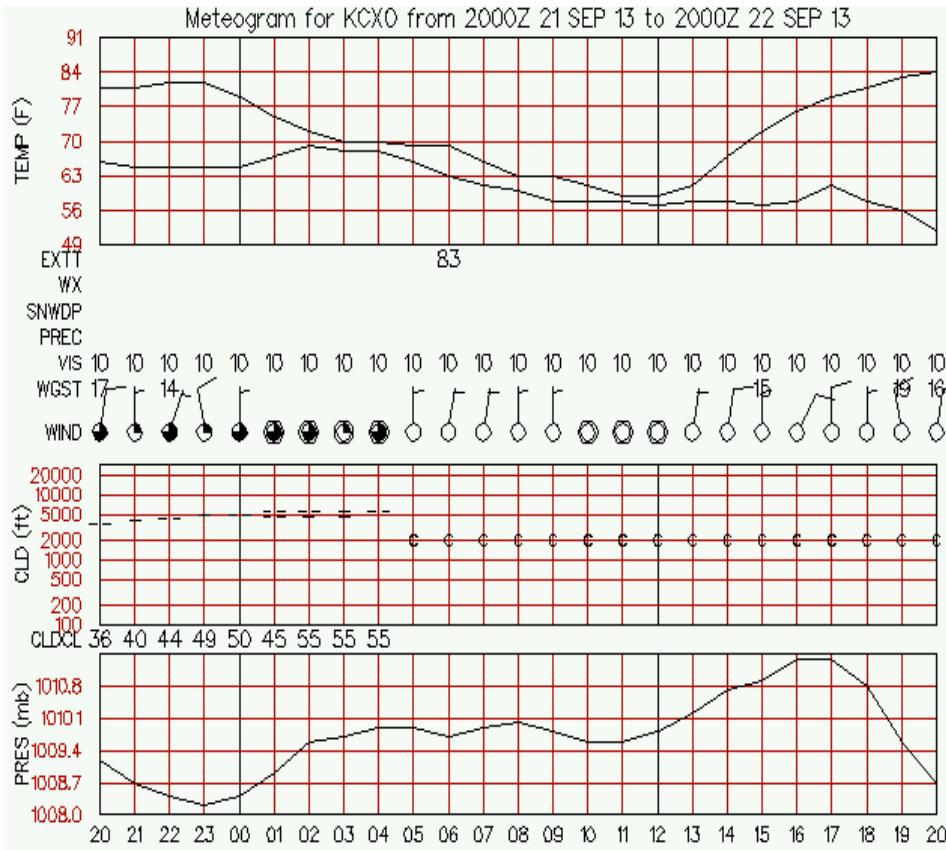
Conroe:



Fair
84°F
29°C

Humidity 33%
Wind Speed N 10 G 18 mph
Barometer 29.80 in (1008.7 mb)
Dewpoint 52°F (11°C)
Visibility 10.00 mi
Heat Index 82°F (28°C)

Last Update on 22 Sep 2:53 pm CDT



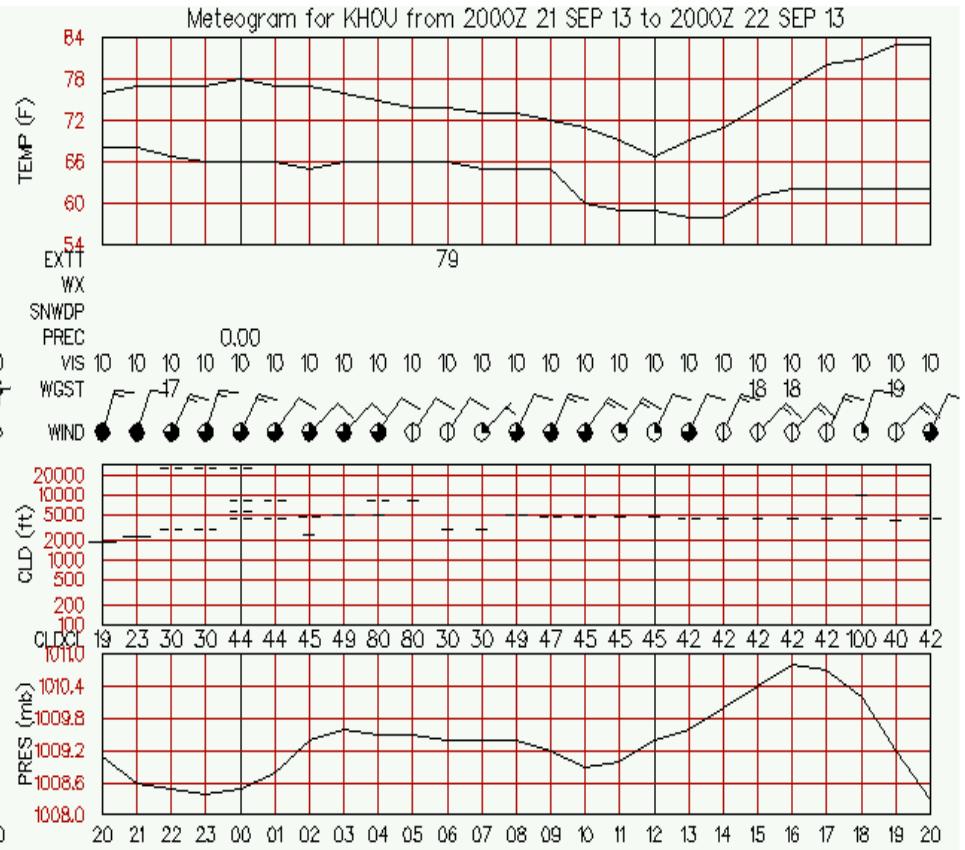
Houston Hobby:



Mostly Cloudy
83°F
28°C

Humidity 49%
Wind Speed NE 14 mph
Barometer 29.76 in (1008.3 mb)
Dewpoint 62°F (17°C)
Visibility 10.00 mi
Heat Index 84°F (29°C)

Last Update on 22 Sep 2:53 pm CDT



Current Conditions

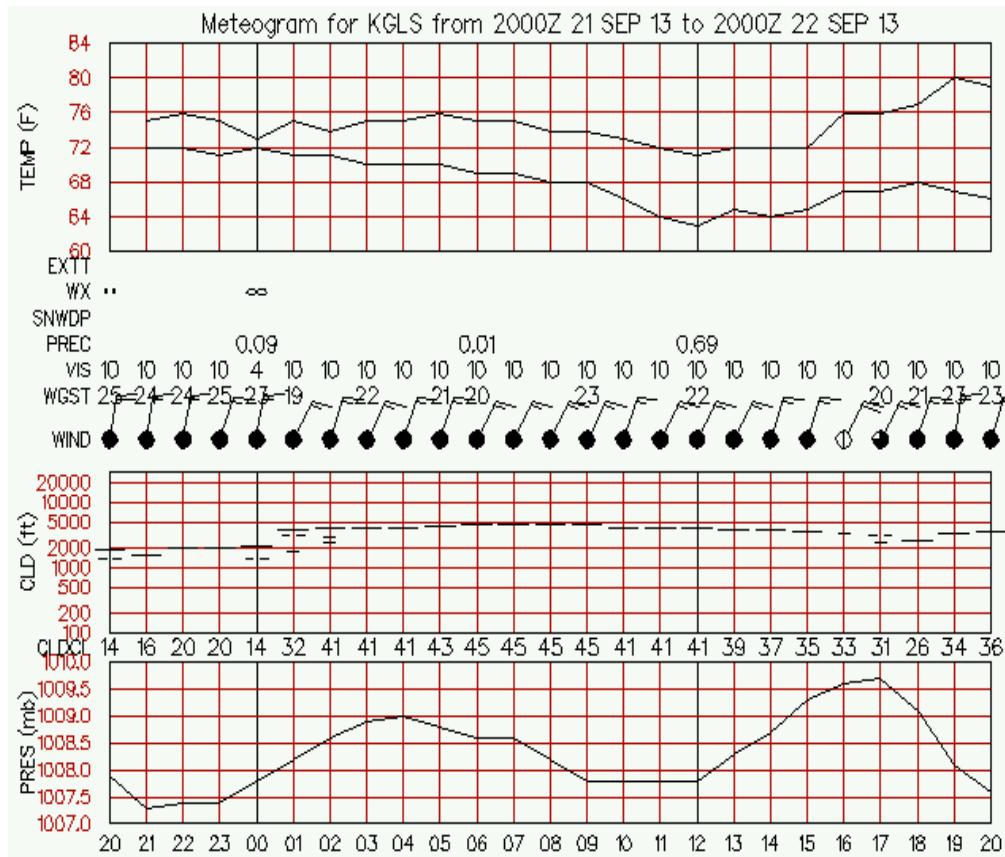
Galveston:

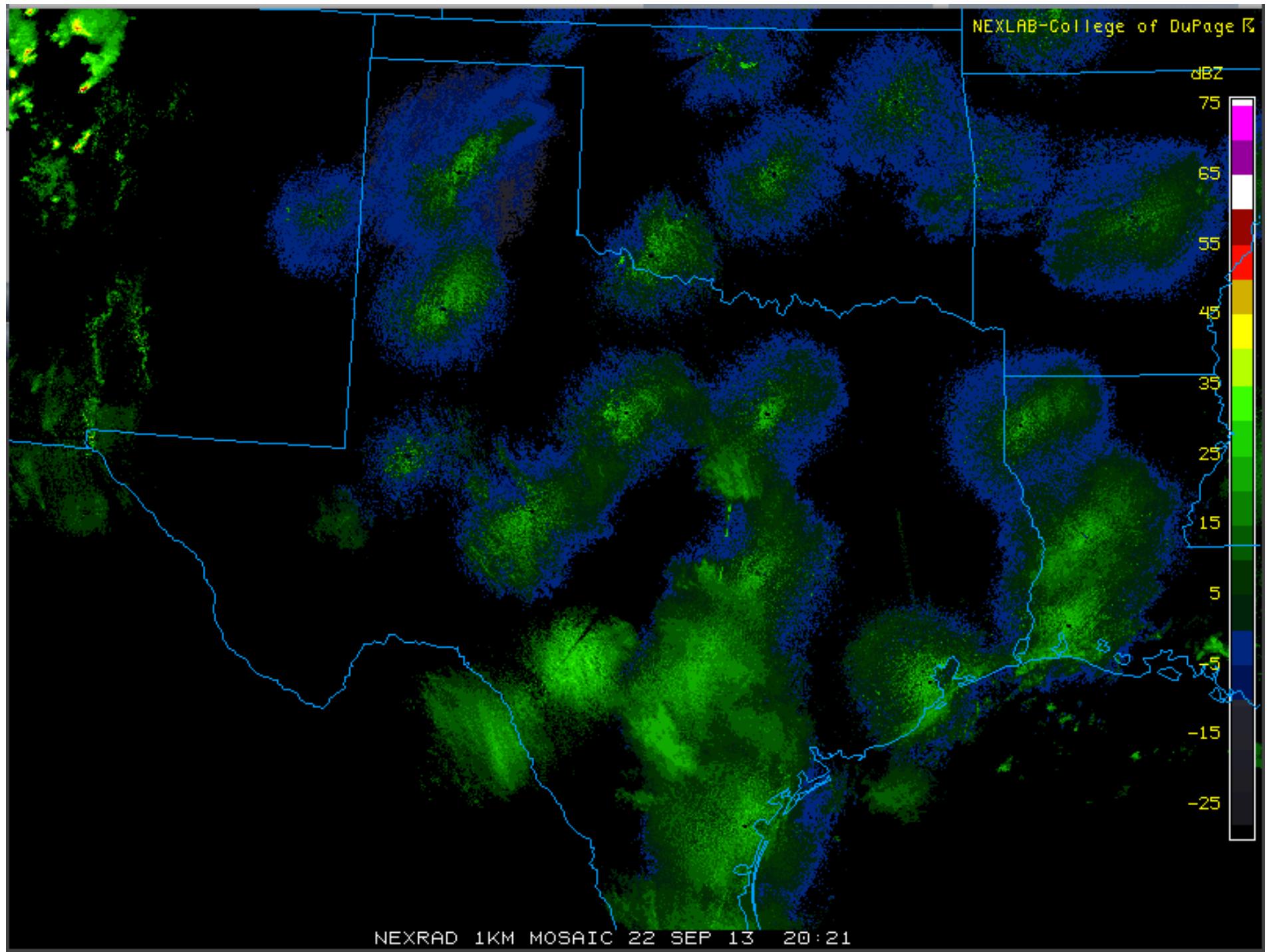


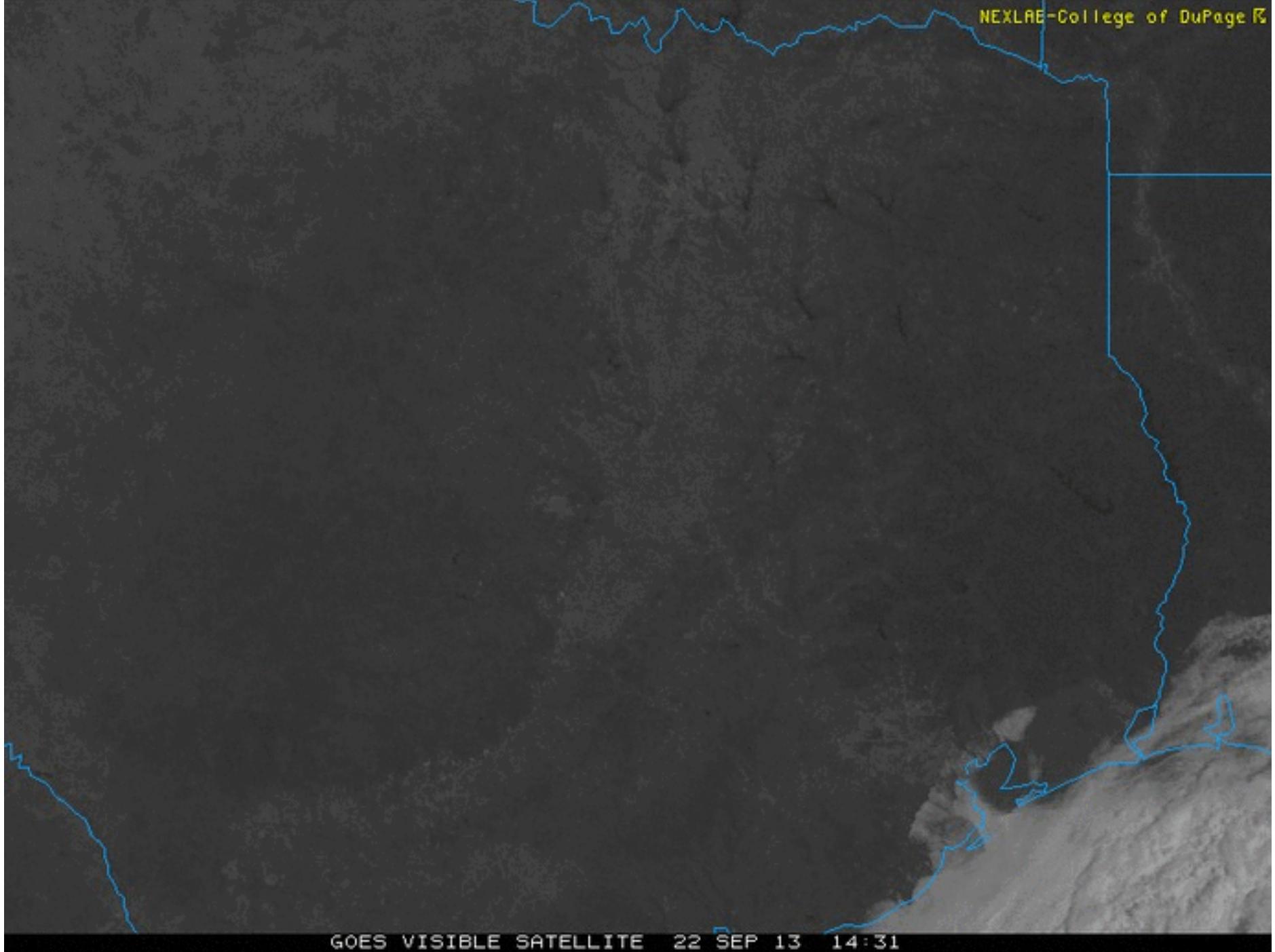
Overcast
79°F
26°C

Humidity 65%
Wind Speed N 18 G 26 mph
Barometer 29.76 in (1007.6 mb)
Dewpoint 66°F (19°C)
Visibility 10.00 mi
Heat Index 81°F (27°C)
Last Update on 22 Sep 2:52 pm CDT

Last Update on 22 Sep 2:52 pm CDT



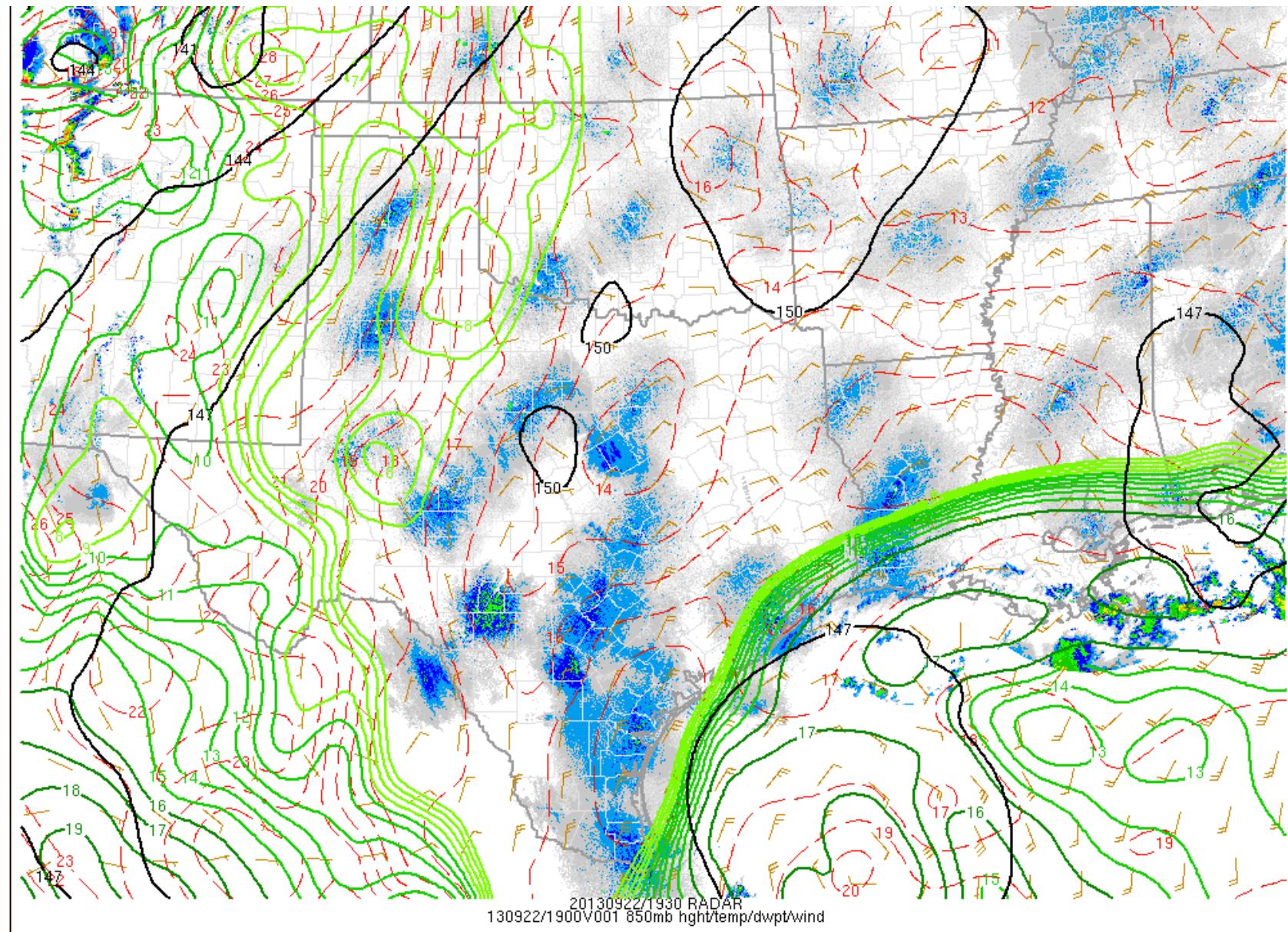




NEXLRE-College of DuPage R

GOES VISIBLE SATELLITE 22 SEP 13 14:31

2pm CDT 850mb dew points – extreme moisture gradient



The back edge of the Deck this morning at Ellington Field.

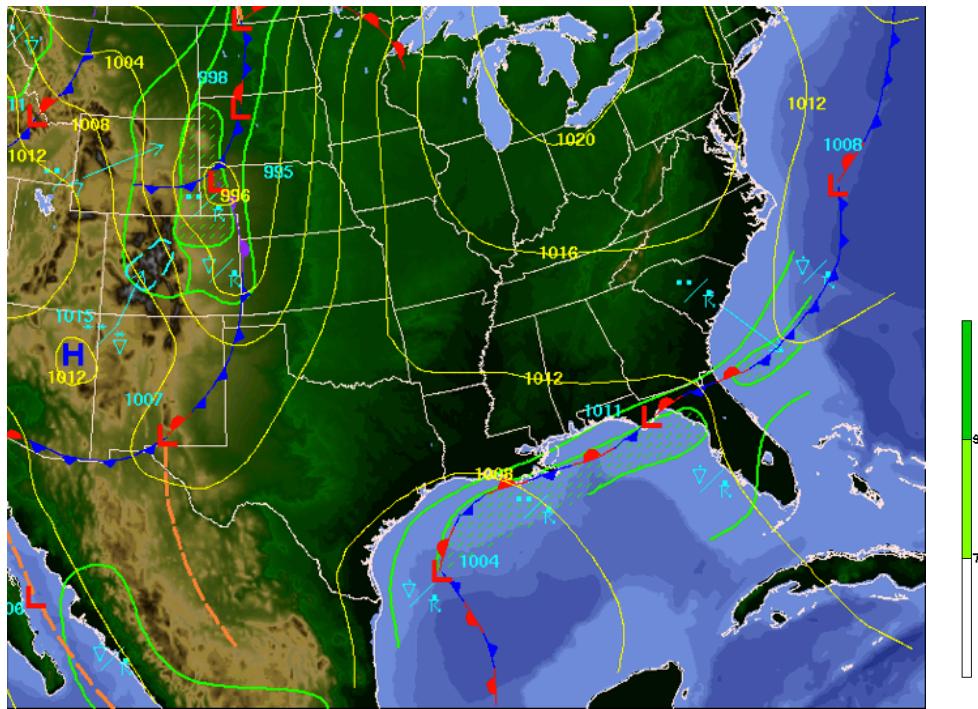


Deck moved out, but winds stiff.

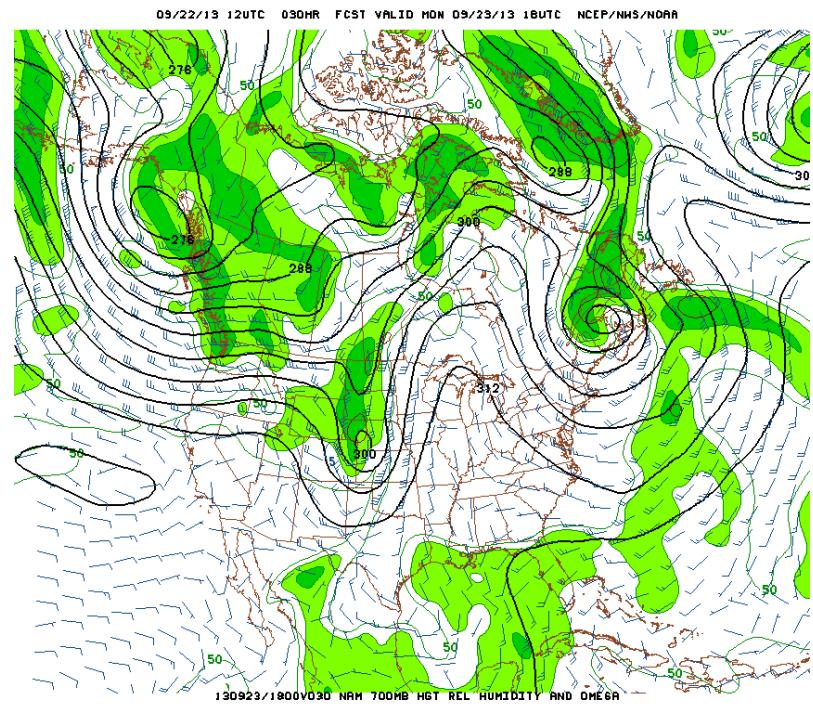


Tomorrow: Low continues to spin menacingly and drifts NE, throwing some moisture our way. Only a slight chance of coastal showers, but low clouds will be the bigger consideration. Less cloud cover north

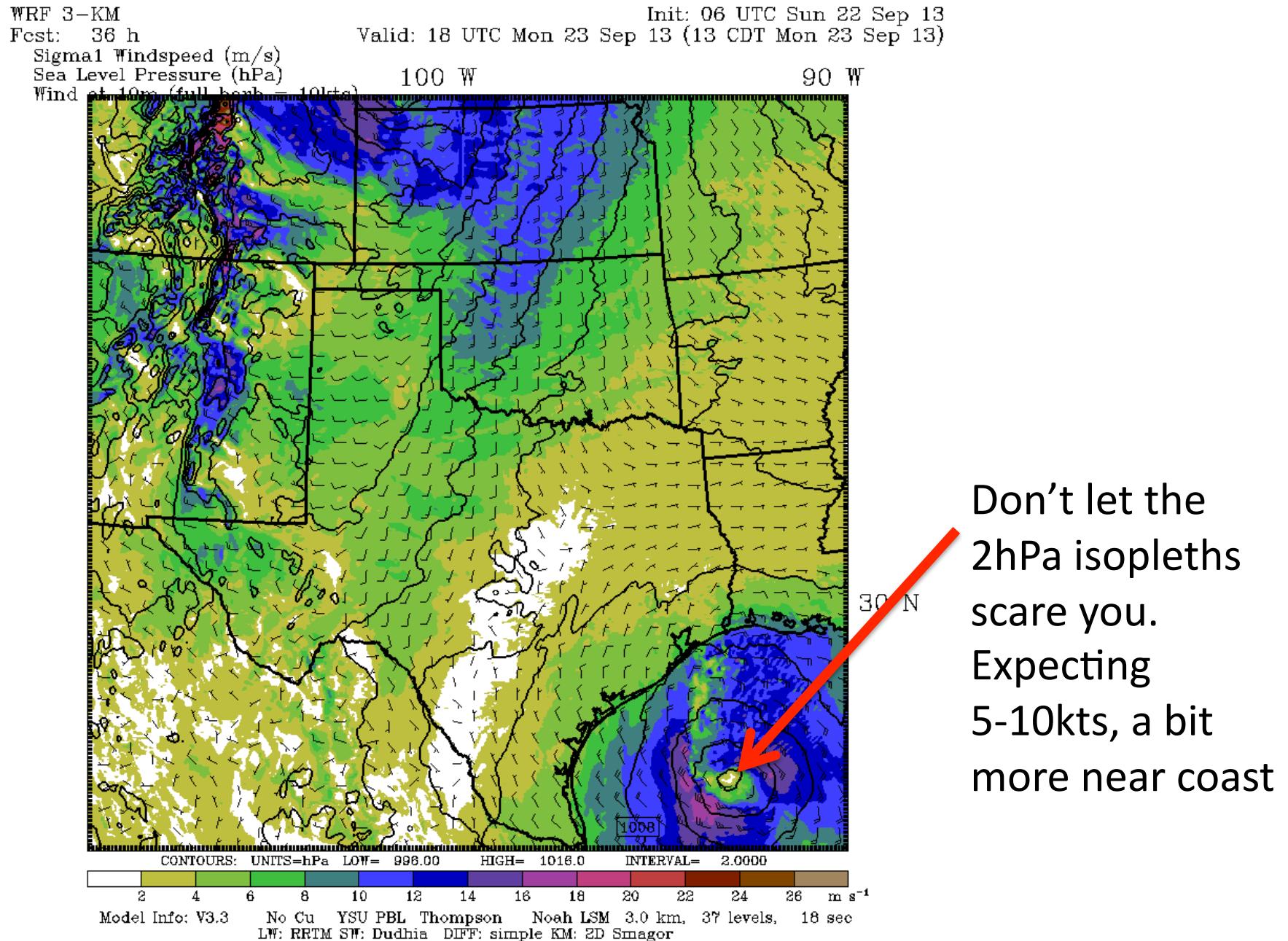
12z Surface Forecast



1 PM CDT NAM
700 mb RH

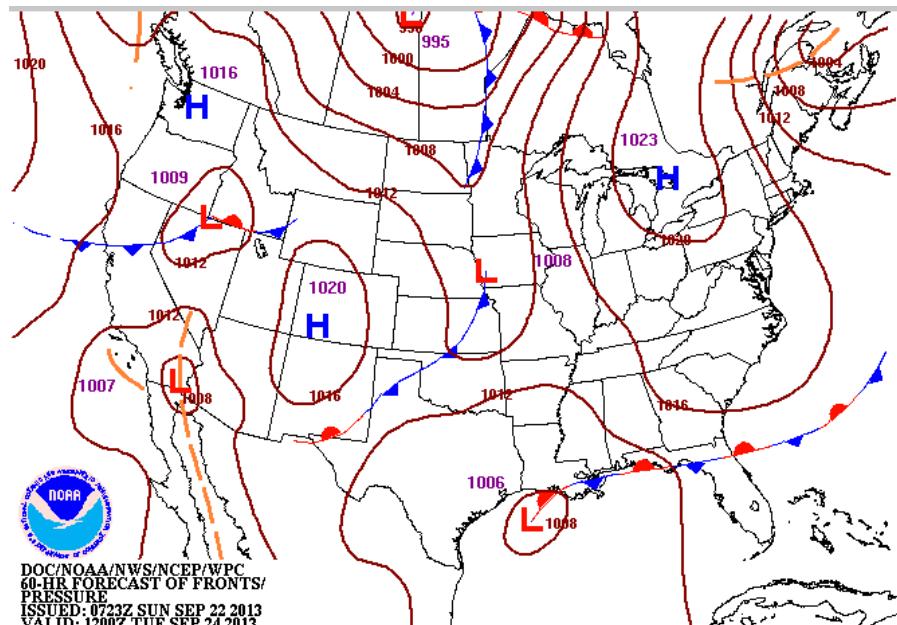


10 m winds at 1 PM tomorrow

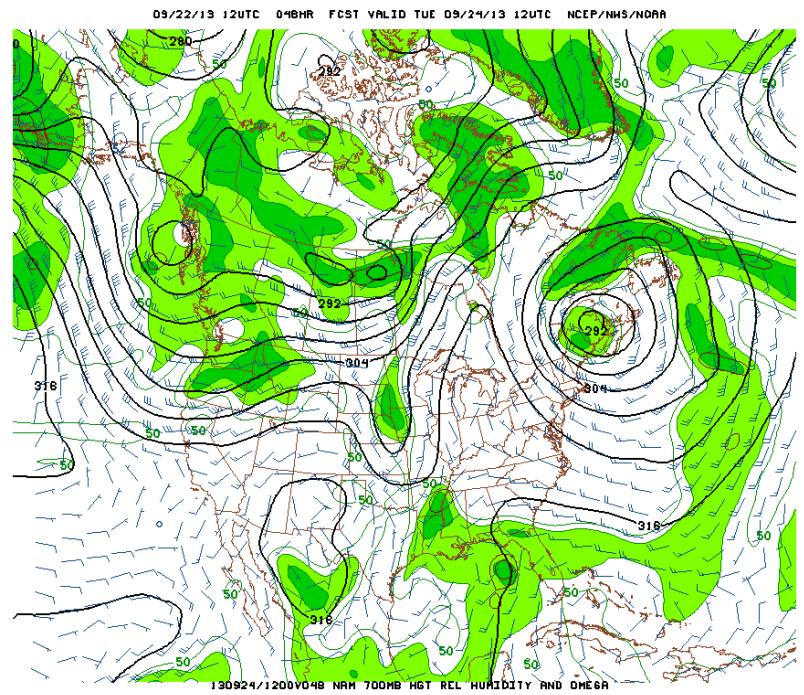


Tuesday: Low pressure center begins moving NE, quickly later in the day as it connects with 500mb trough. The earlier the better, but maybe another marginal day with cloud cover especially early

12z Surface Forecast



7 AM CDT NAM
700 mb RH



10 m winds at 1 PM Tuesday

WRF 3-KM

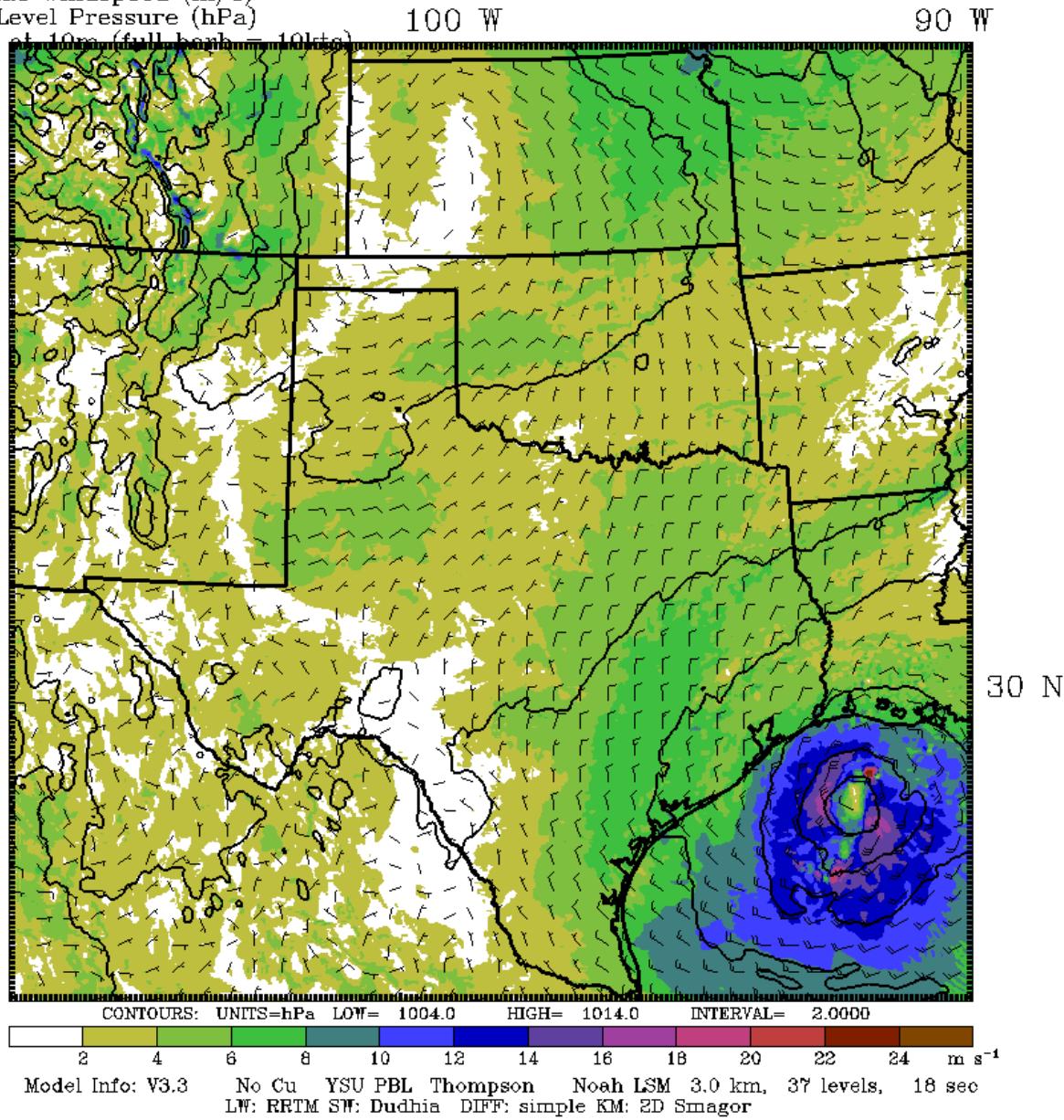
Fest: 60 h

Sigma1 Windspeed (m/s)

Sea Level Pressure (hPa)

Wind at 10m (full barbs = 10ft/s)

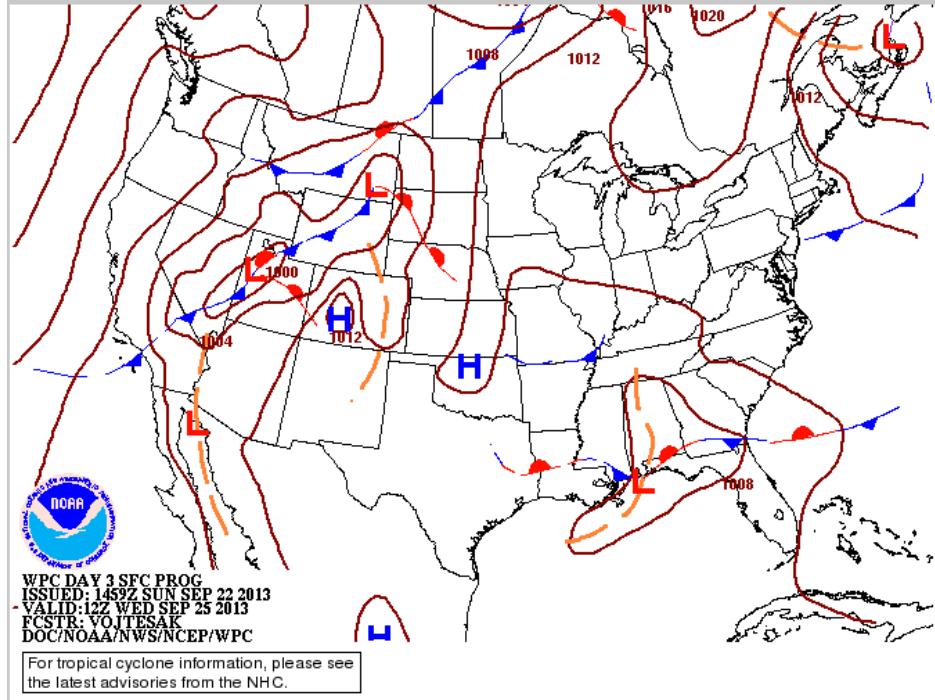
Init: 06 UTC Sun 22 Sep 13
Valid: 18 UTC Tue 24 Sep 13 (13 CDT Tue 24 Sep 13)



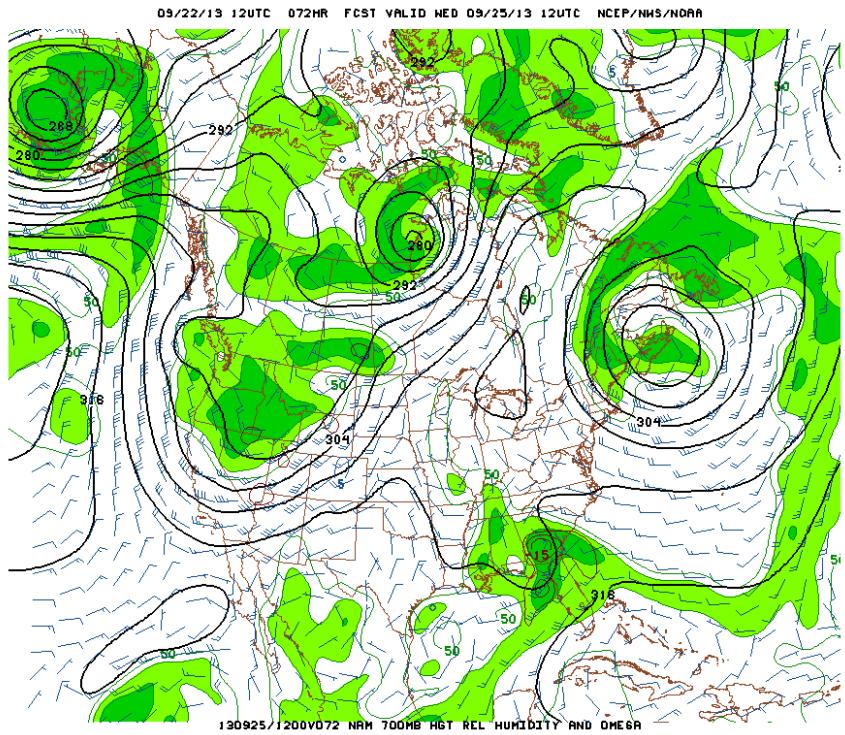
Winds similar to
Monday,
perhaps a bit
more northerly

Wednesday: The low is finally clear of the region. Upper level ridge takes control and will remain in control until likely Friday night

12z Surface Forecast

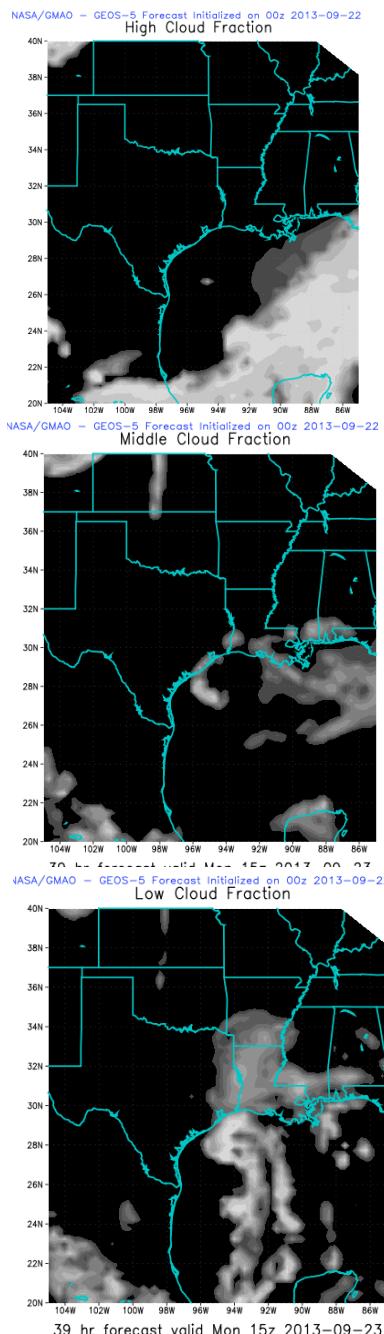


7 AM CDT NAM 700 mb RH

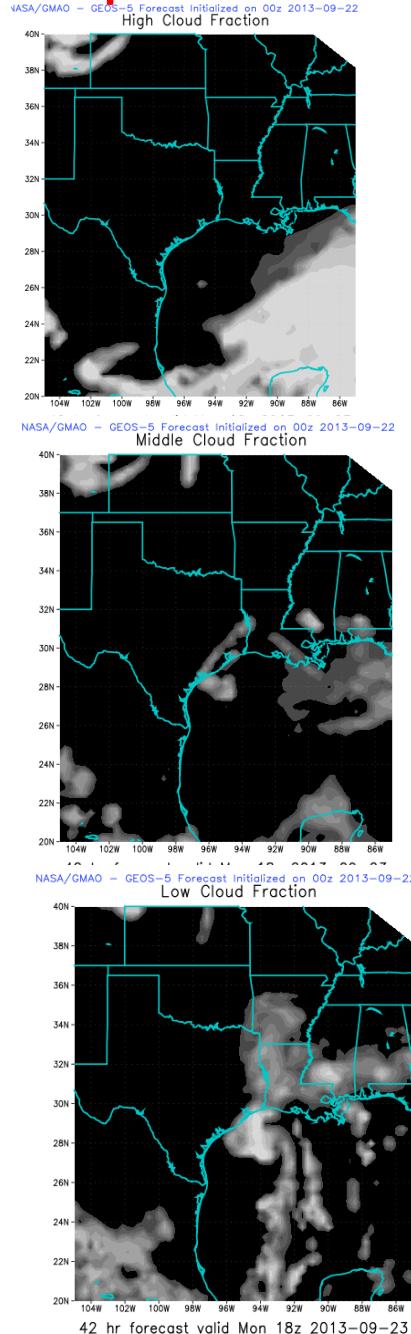


Tomorrow (Monday): GEOS-5 – 0Z forecast

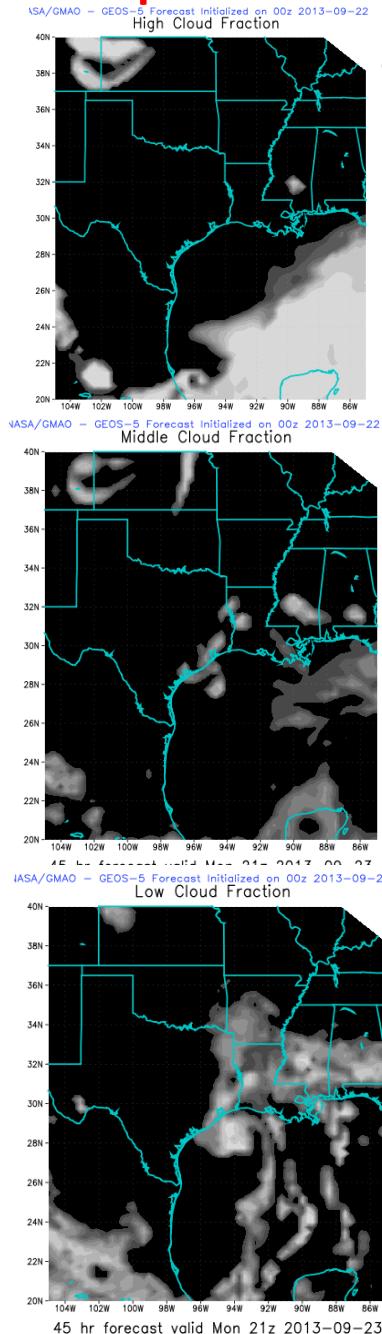
10 am



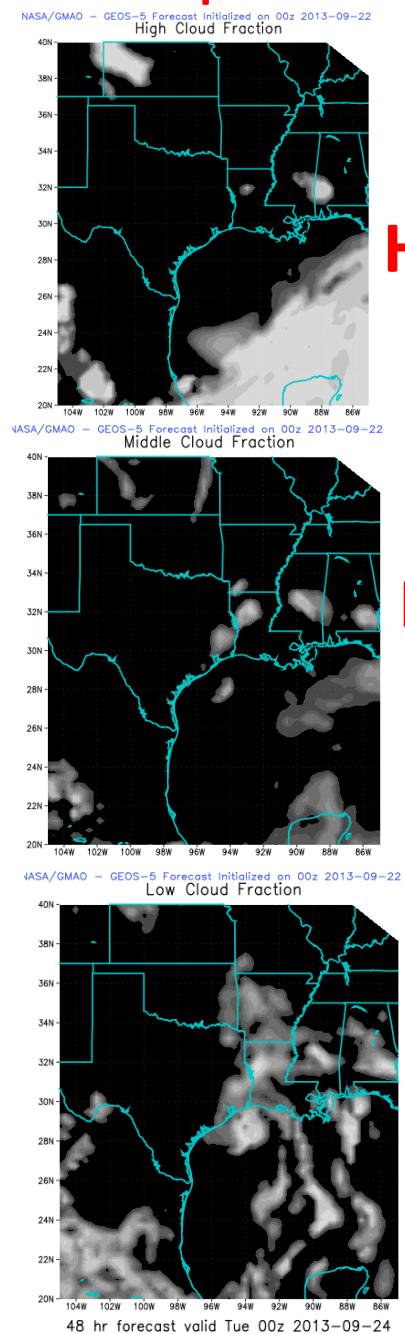
1 pm



4 pm



7 pm



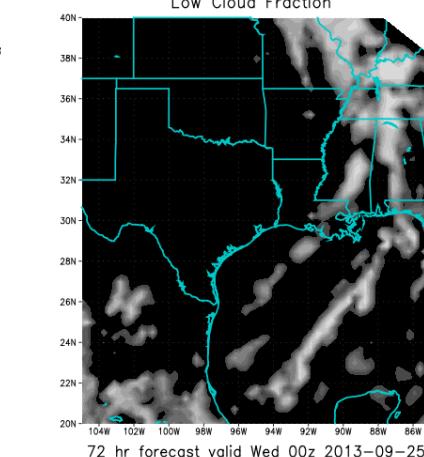
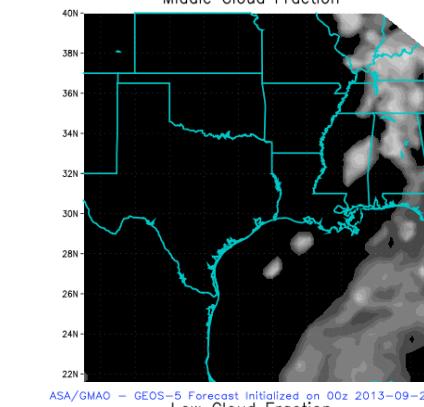
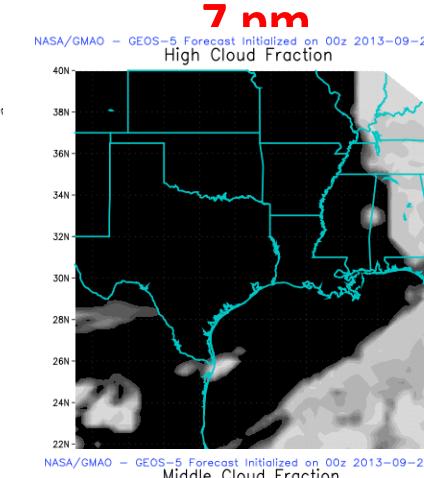
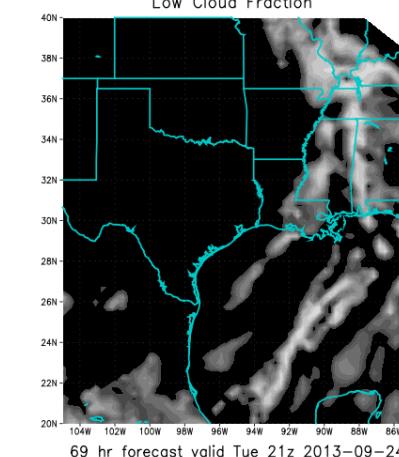
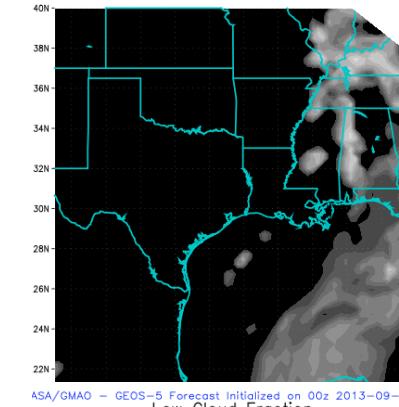
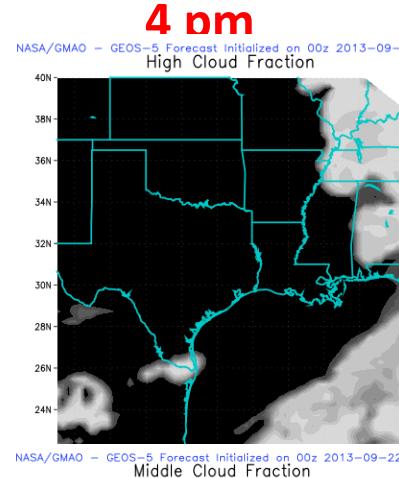
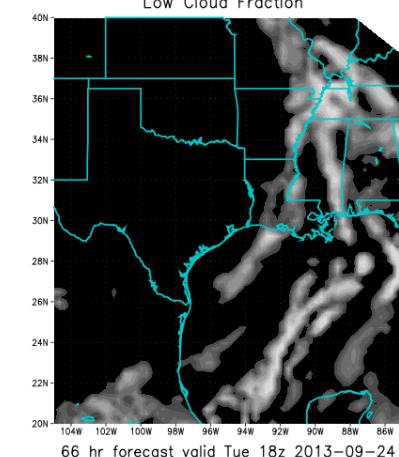
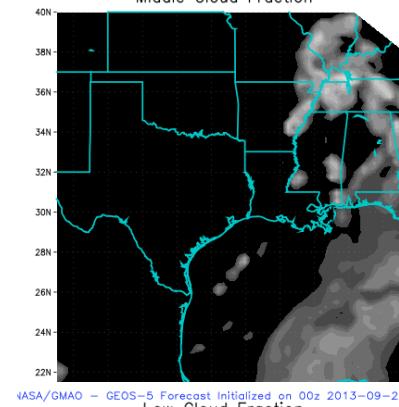
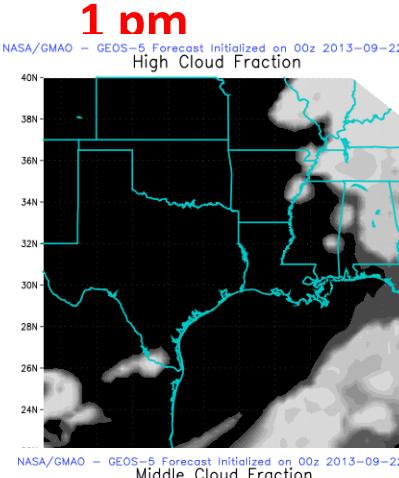
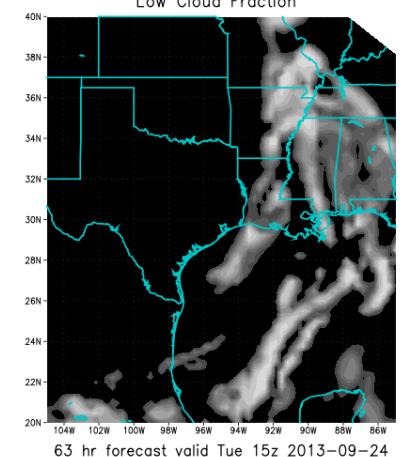
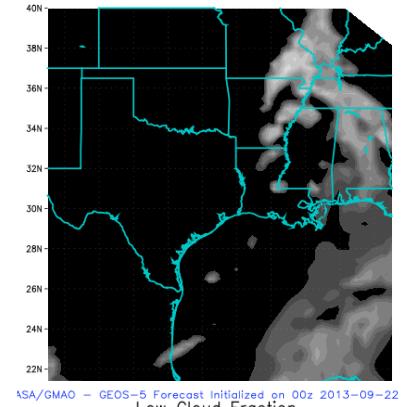
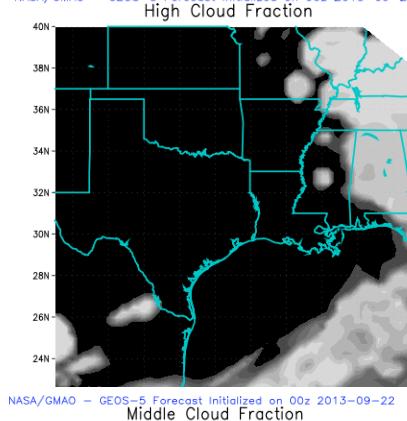
High

Mid

Low

Tuesday: GEOS-5 – 10 am

NASA/GMAO – GEOS-5 Forecast Initialized on 00z 2013-09-22



High

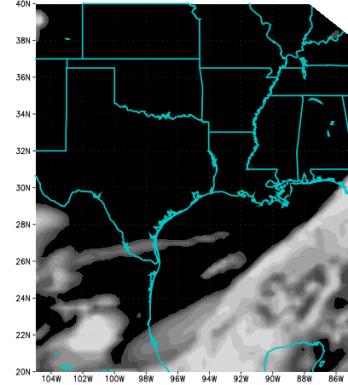
Mid

Low

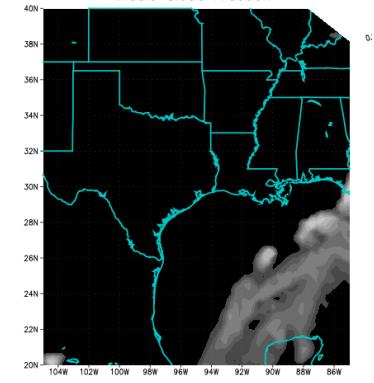
Wednesday: GEOS-5 –

10 am

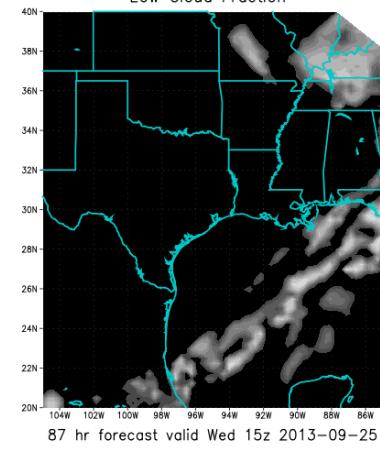
NASA/GMAO — GEOS-5 Forecast Initialized on 00z 2013-09-22
High Cloud Fraction



87 hr forecast valid Wed 15z 2013-09-25
NASA/GMAO — GEOS-5 Forecast Initialized on 00z 2013-09-22
Middle Cloud Fraction

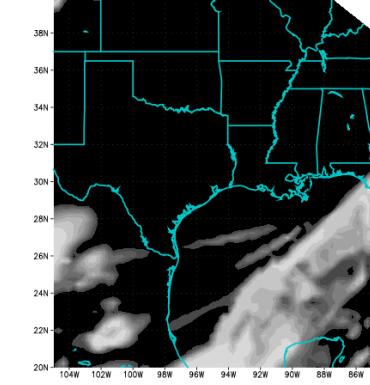


NASA/GMAO — GEOS-5 Forecast Initialized on 00z 2013-09-22
Low Cloud Fraction

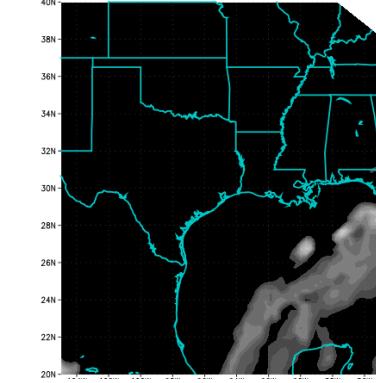


1 pm

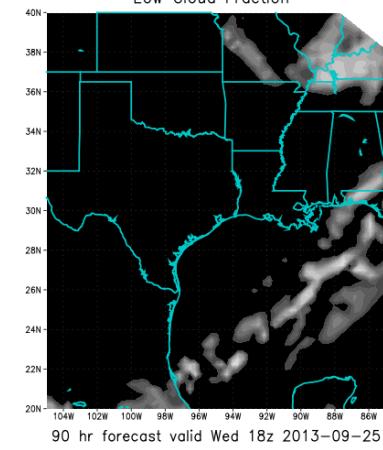
NASA/GMAO — GEOS-5 Forecast Initialized on 00z 2013-09-22
High Cloud Fraction



NASA/GMAO — GEOS-5 Forecast Initialized on 00z 2013-09-22
Middle Cloud Fraction

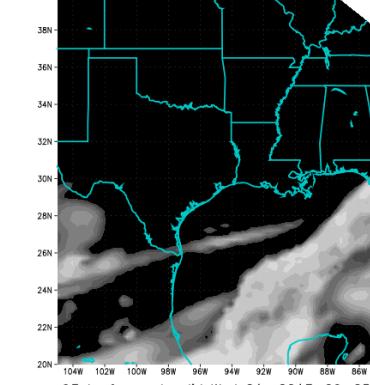


NASA/GMAO — GEOS-5 Forecast Initialized on 00z 2013-09-22
Low Cloud Fraction

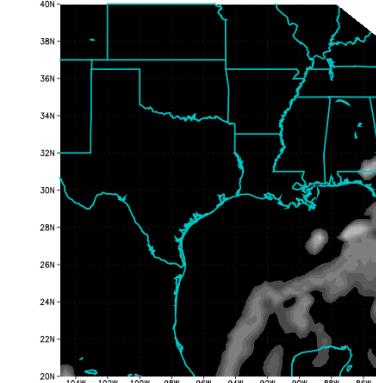


4 pm

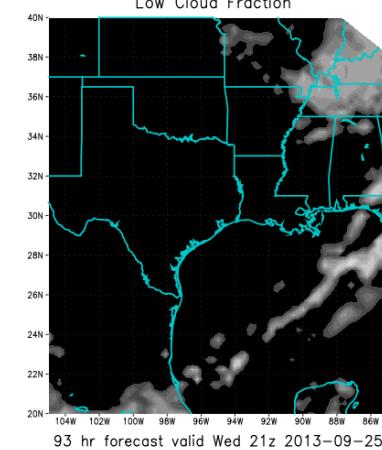
NASA/GMAO — GEOS-5 Forecast Initialized on 00z 2013-09-22
High Cloud Fraction



NASA/GMAO — GEOS-5 Forecast Initialized on 00z 2013-09-22
Middle Cloud Fraction

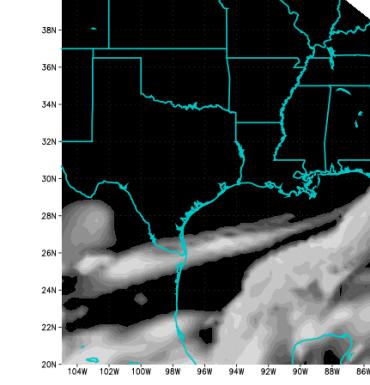


NASA/GMAO — GEOS-5 Forecast Initialized on 00z 2013-09-22
Low Cloud Fraction

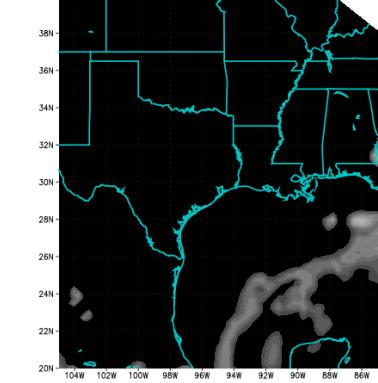


7 pm

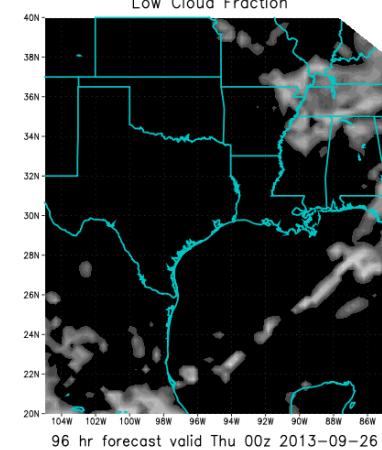
NASA/GMAO — GEOS-5 Forecast Initialized on 00z 2013-09-22
High Cloud Fraction



NASA/GMAO — GEOS-5 Forecast Initialized on 00z 2013-09-22
Middle Cloud Fraction



NASA/GMAO — GEOS-5 Forecast Initialized on 00z 2013-09-22
Low Cloud Fraction



High

Mid

Low

Summary

- Monday: **Fly Day.** Uncertainty in model handling of Gulf Low and aggressive (too much) cloud forecasts.
- Tuesday: **Likely Fly.** Similar to Monday, will monitor progress of low. Will be moving from region late
- Wed/Thur...Fri?: **Probable Fly Days.** Chance to build some pollution. Wind shift expected to S by Friday though. Front passes during weekend
- Note: we will meet Monday 6am in Homewood Suites lobby to confirm Monday flight.

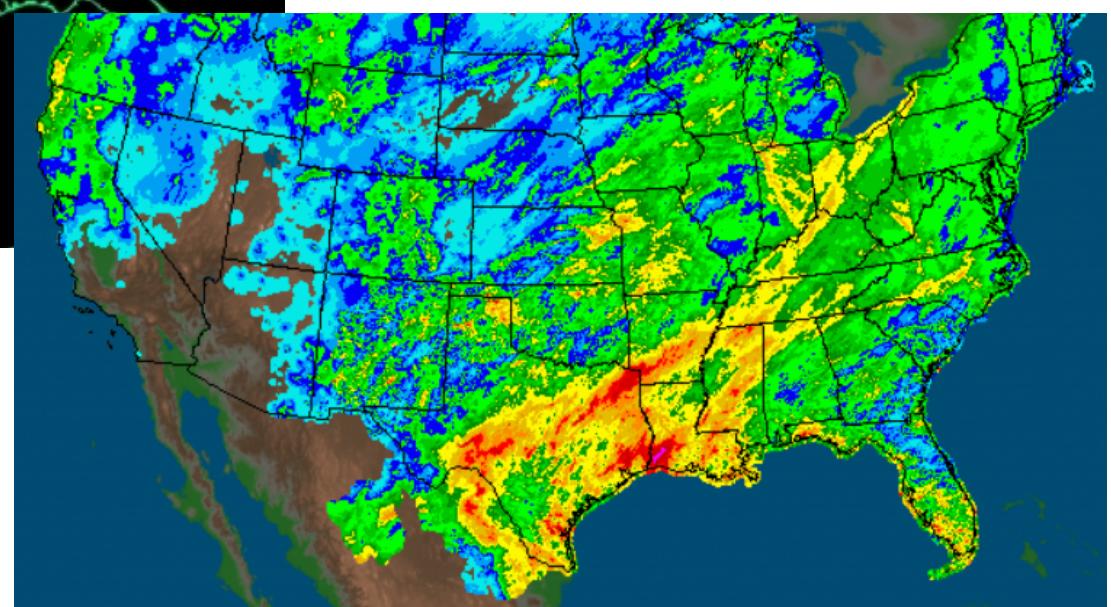
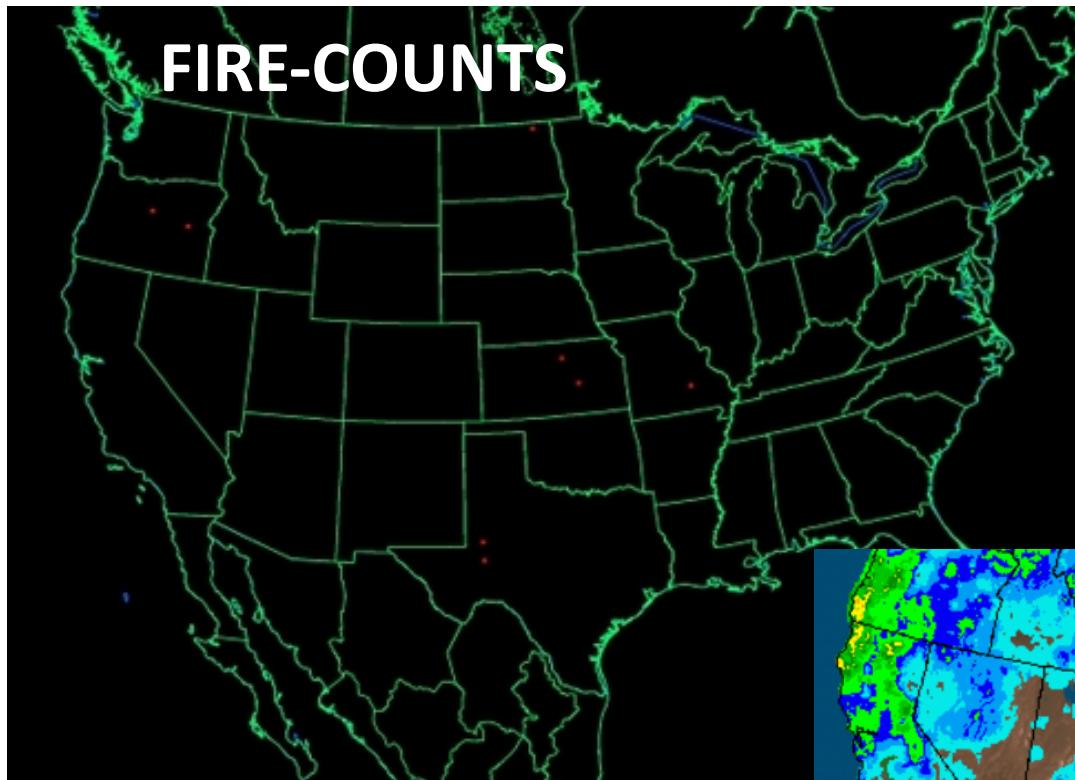
DISCOVER-AQ Air Quality Outlook

September 22, 2013

Bryan Duncan

Mariel Friberg

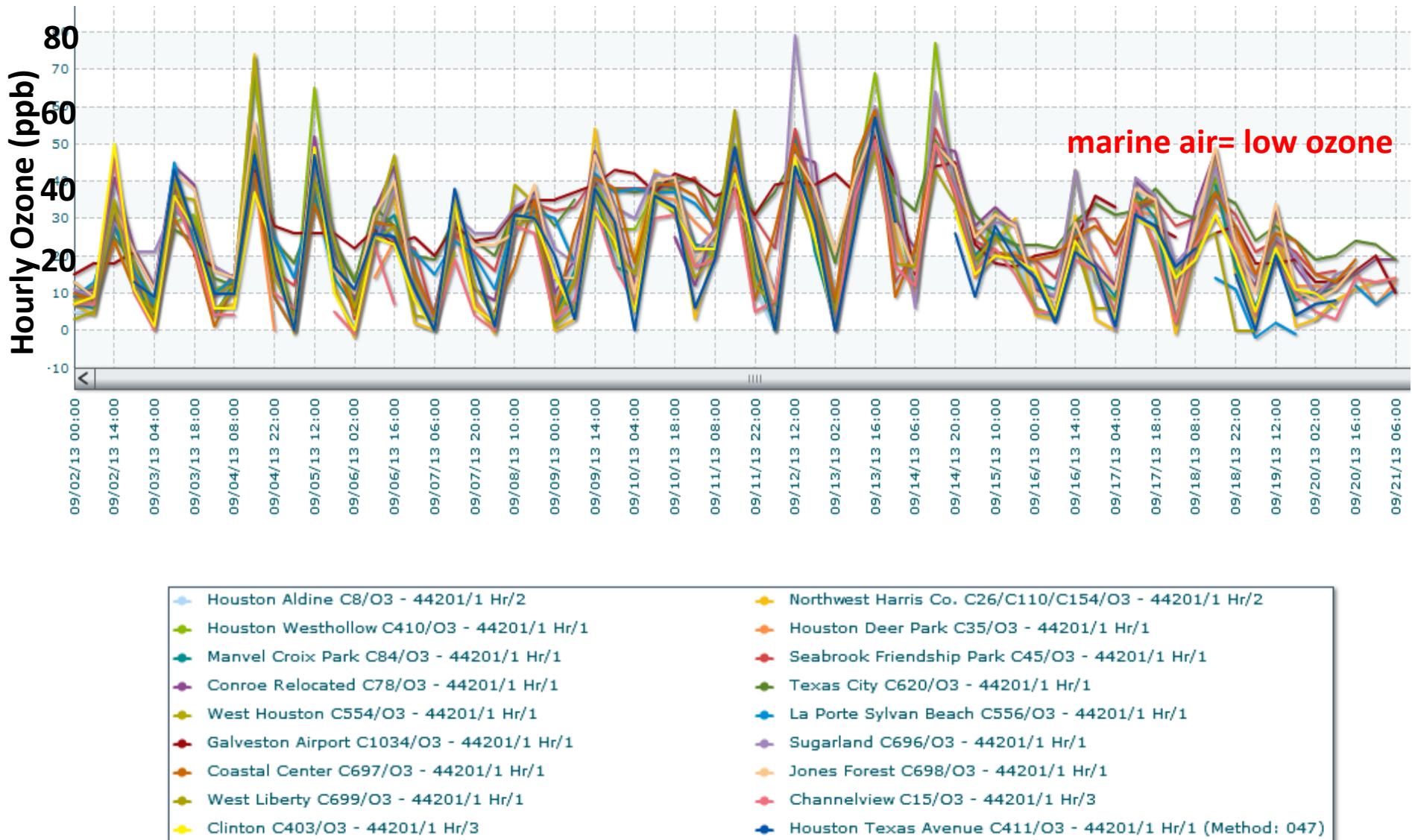
Very few fire-counts today due to heavy rains last week, but we will keep an eye out for agricultural fires in the Mississippi Valley to begin again in the next few days.



Hourly Ozone (airnowtech.org)**

September 2nd – 20th

** EVERY 7th HOUR PLOTTED!!!!



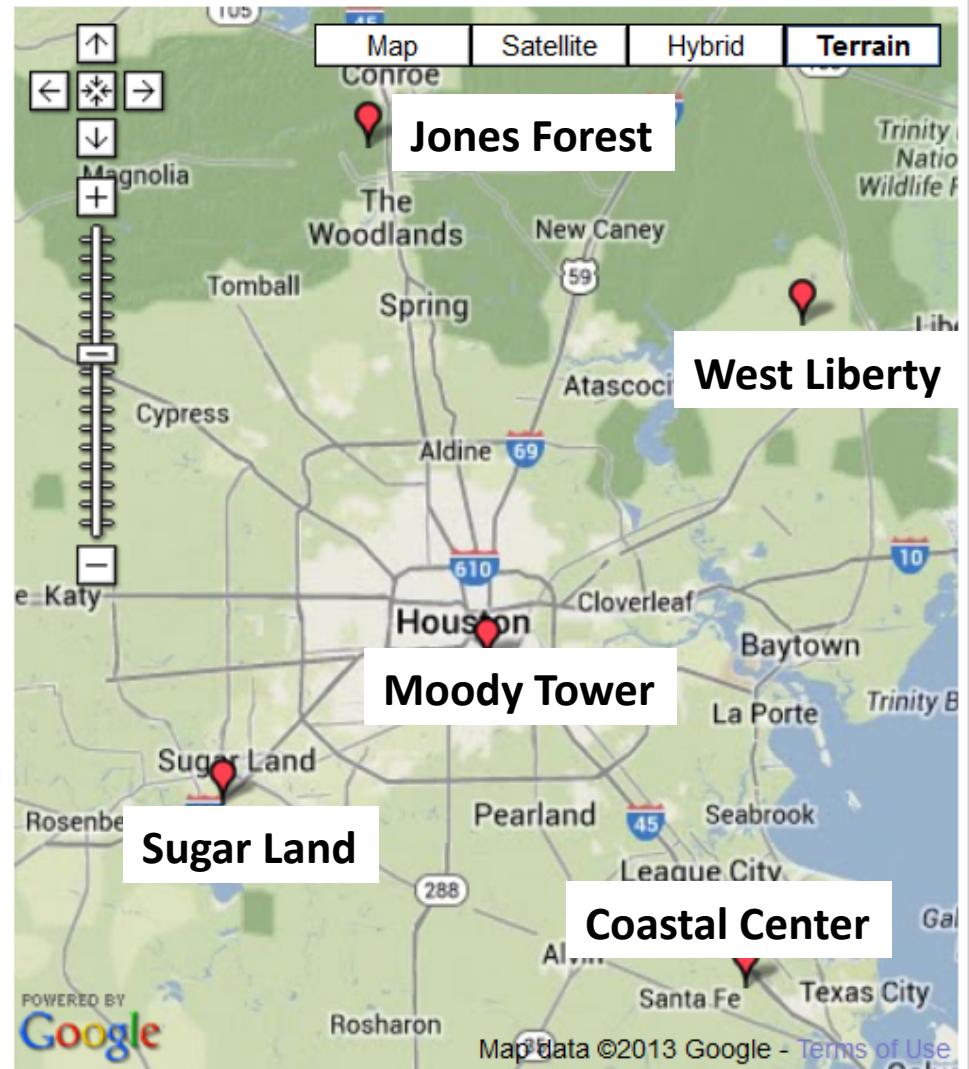
Houston - Network of Environmental Towers (H-NET)

Houston Network of Environmental Towers (H-NET) collect chemistry and meteorological measurements for air quality model applications in Houston Galveston Area. This web site provides real-time update of collected data, as well as historical data.

Currently, [five sites](#) have been set up in

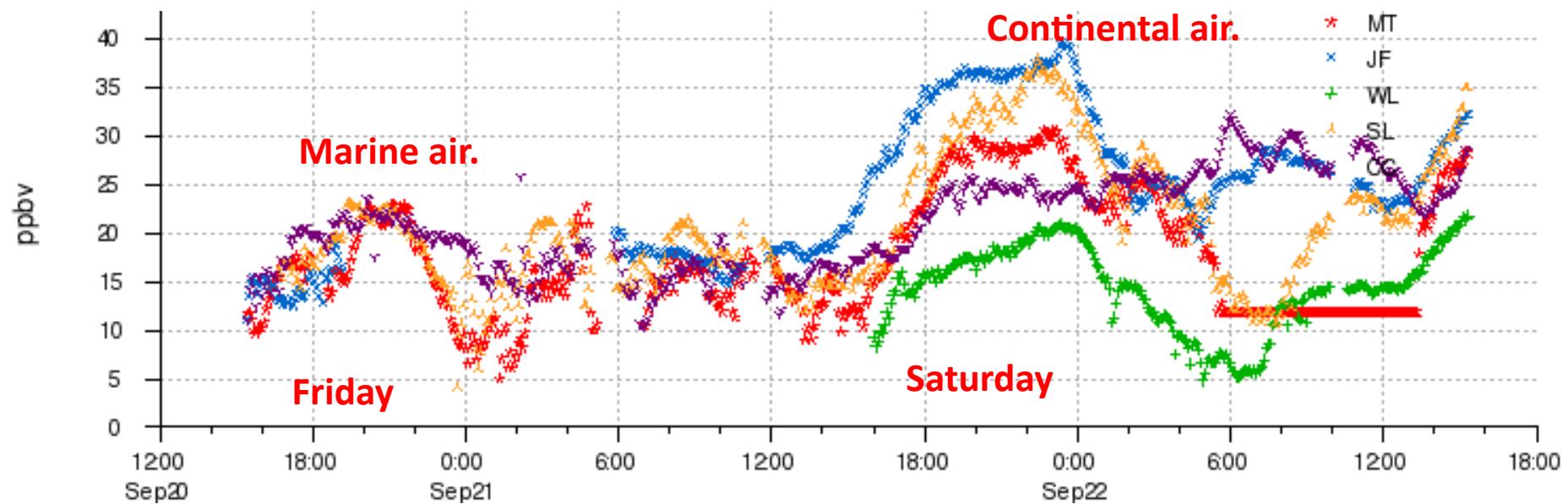
- [UH - Main Campus](#) (695)
- [Jones State Forest](#) (698)
- [West Liberty Airport](#) (699)
- [UH - Sugar Land](#) (696)
- [UH - Coastal Center](#) (697)

[More about this project.](#)

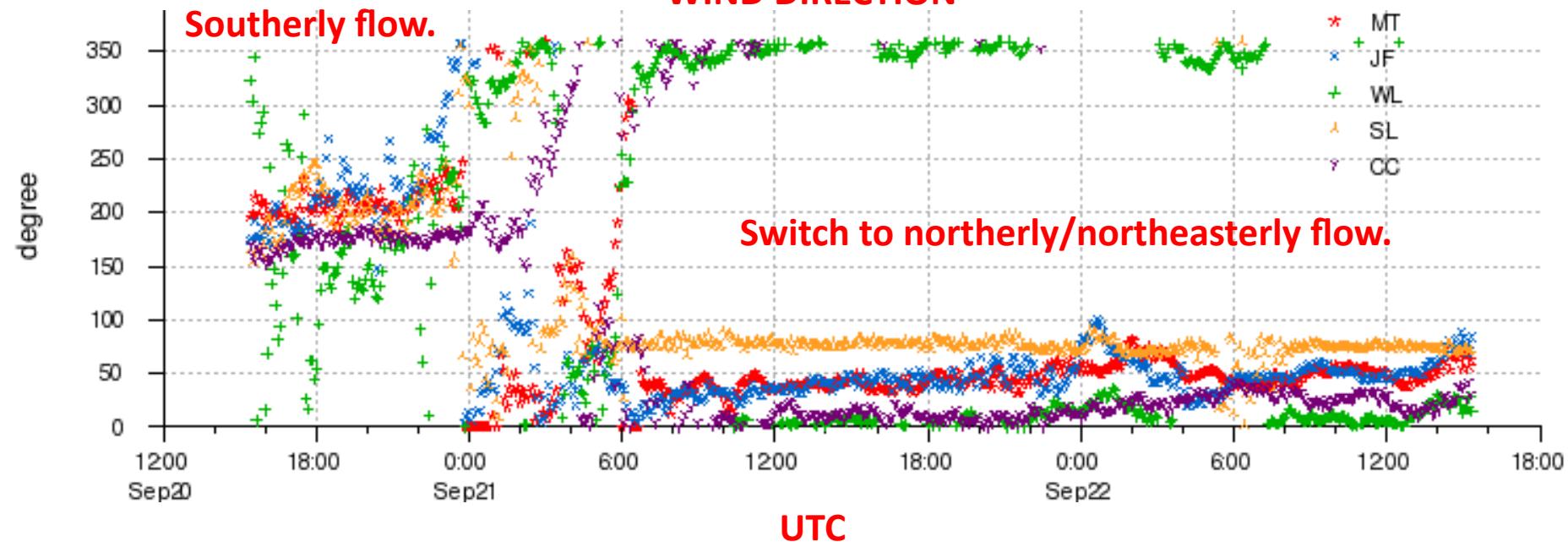


HNET

OZONE

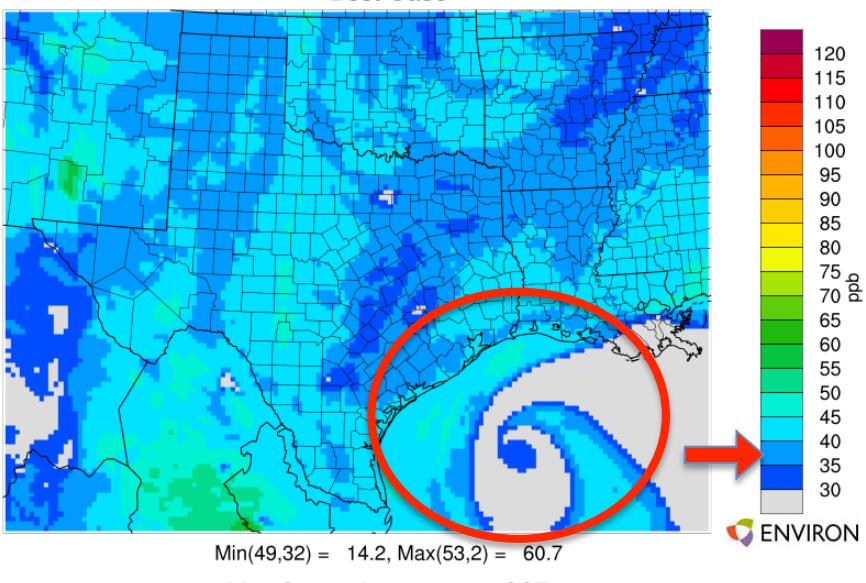


WIND DIRECTION



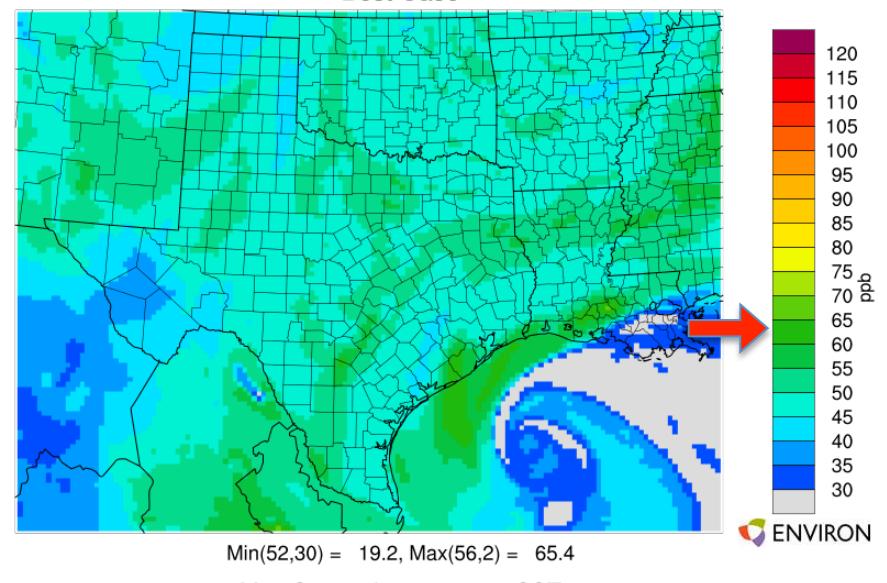
9 am

Ozone
Best Case



MONDAY

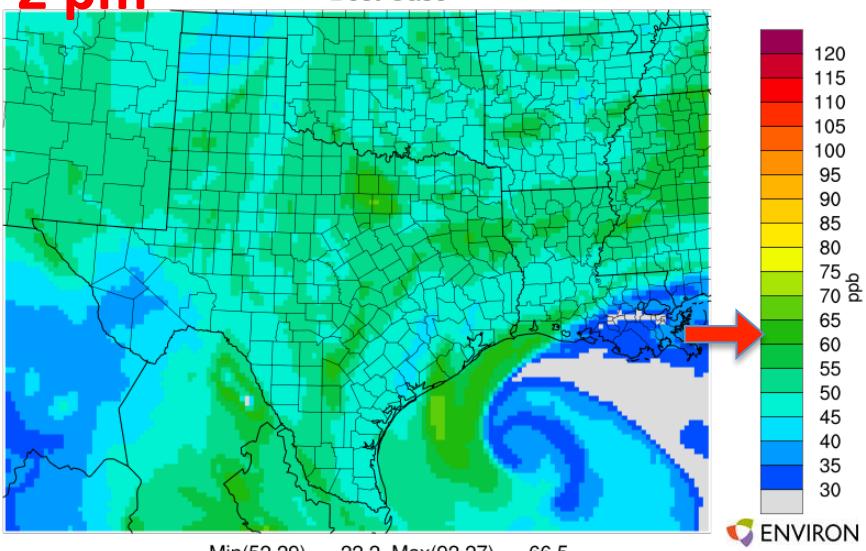
Ozone
Best Case



noon

2 pm

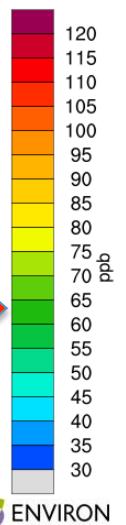
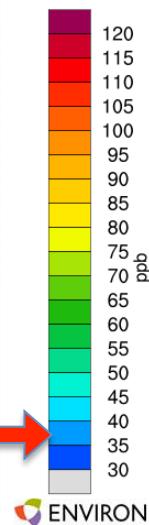
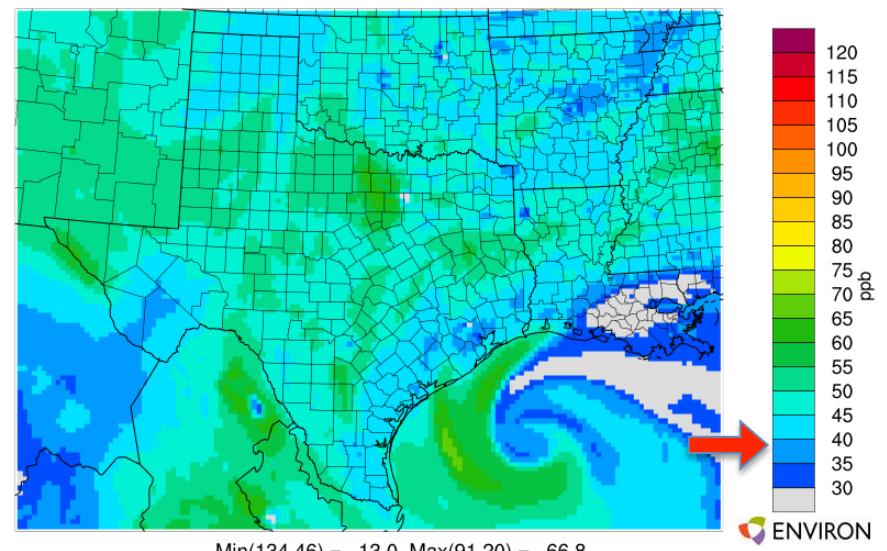
Ozone
Best Case



CAMx Model
Surface Ozone

5 pm

Ozone
Best Case



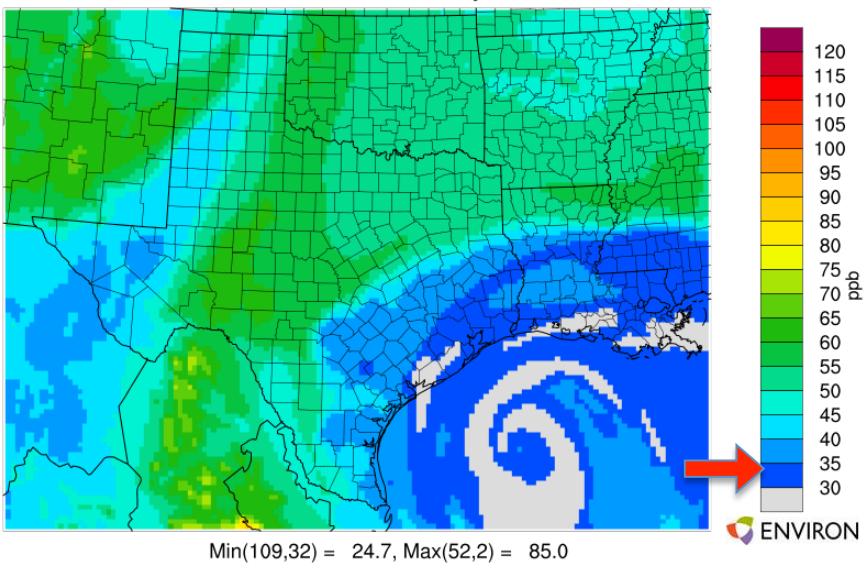
ENVIRON

ENVIRON

9 am

Ozone

Best Case: CAMx Layer 14

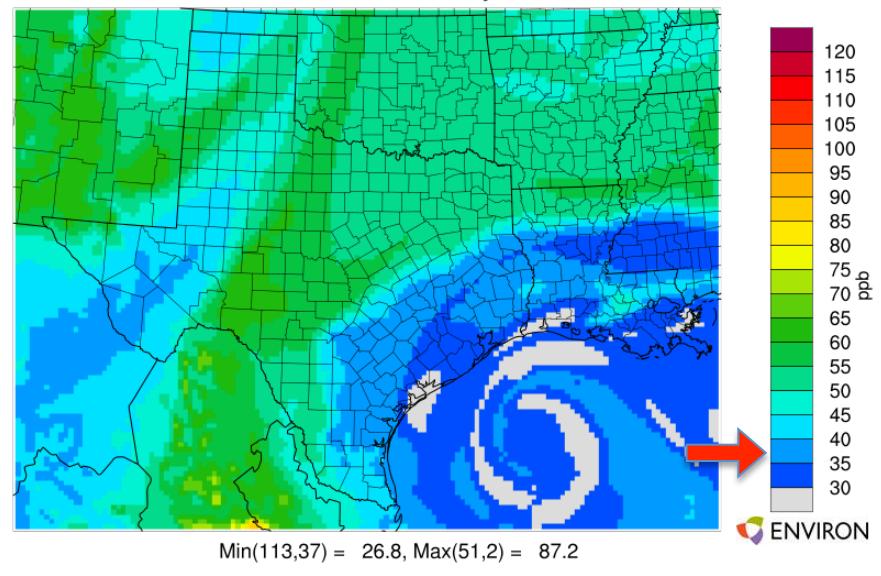


MONDAY

Ozone

Best Case: CAMx Layer 14

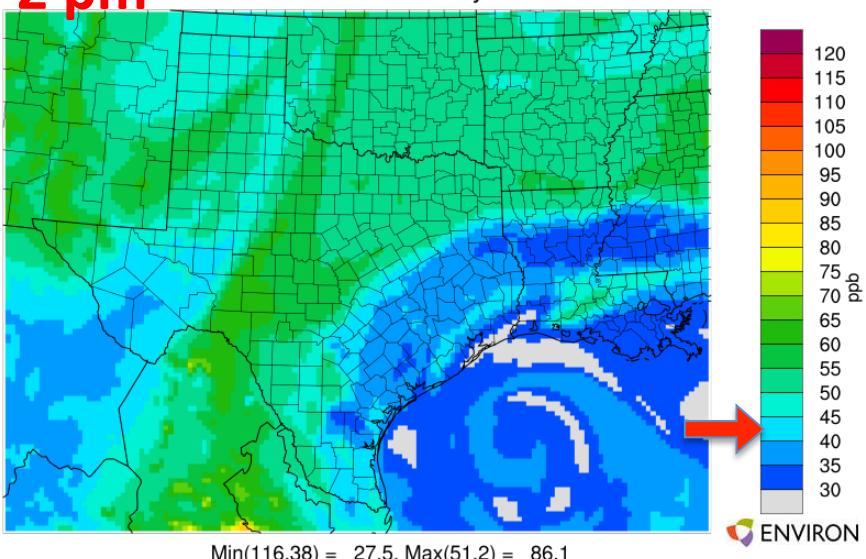
noon



2 pm

Ozone

Best Case: CAMx Layer 14



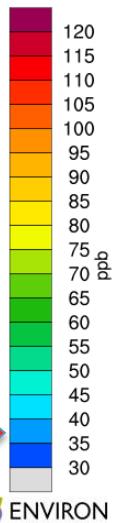
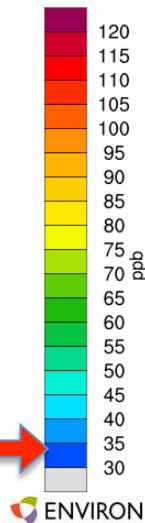
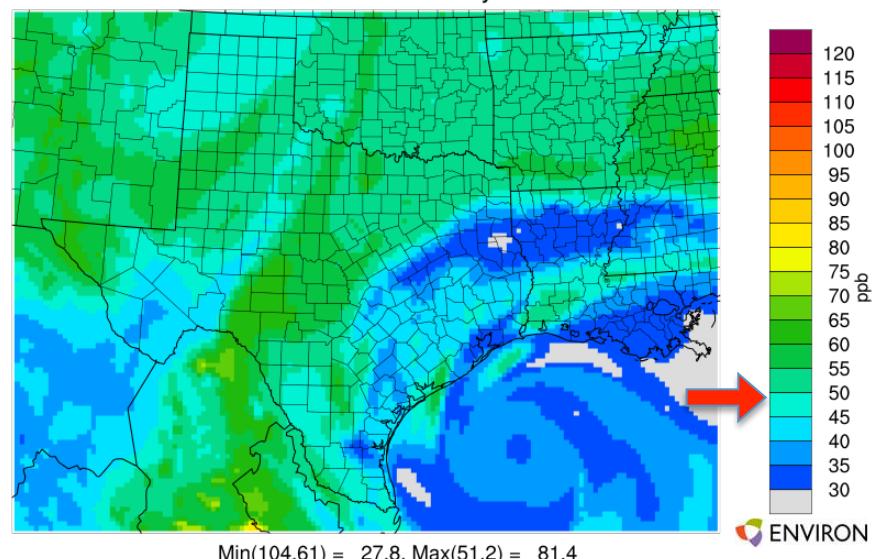
CAMx Model

1.2 km Ozone

5 pm

Ozone

Best Case: CAMx Layer 14



ENVIRON

ENVIRON

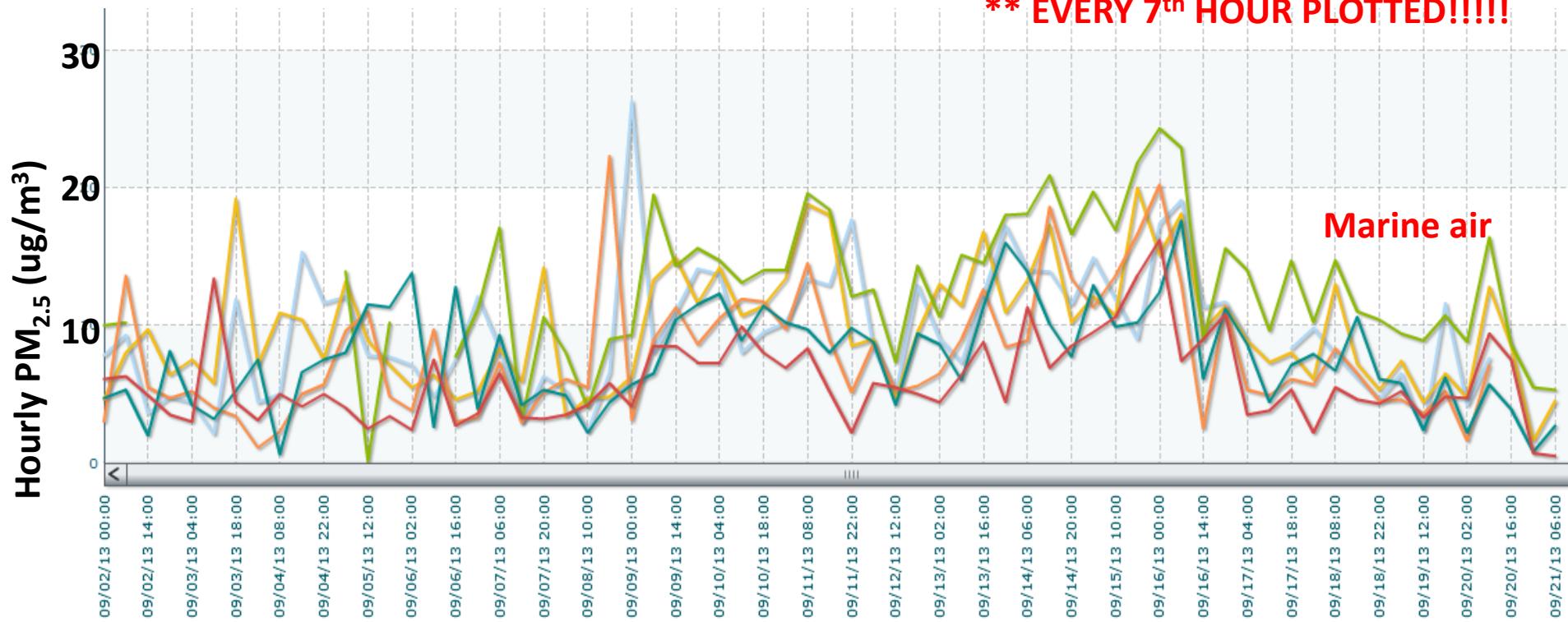
For Monday's flight:

- Clean conditions should be the rule – low ozone, low PM.
- However, there could be some interesting vertical structure in ozone and other trace gases due to the pesky low.

Hourly PM_{2.5} (airnowtech.org)**

September 2nd – 20th

** EVERY 7th HOUR PLOTTED!!!!

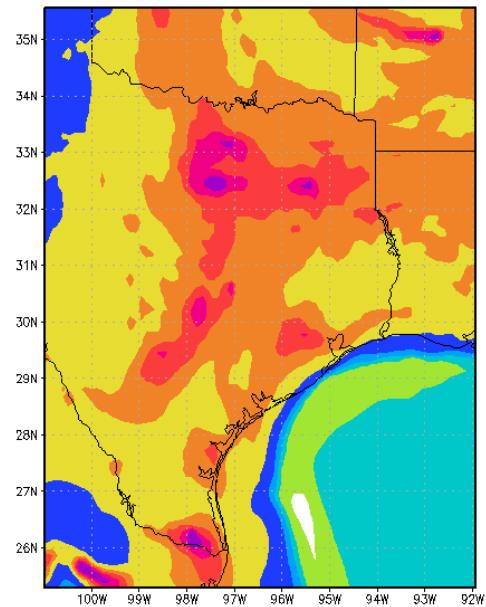


- Houston Aldine C8/PM2.5-88502 - 88502/1 Hr/3
- Houston Deer Park C35/PM2.5-88502 - 88502/1 Hr/3
- Conroe Relocated C78/PM2.5-88502 - 88502/1 Hr/3

- Clinton C403/PM2.5-88502 - 88502/1 Hr/3
- Seabrook Friendship Park C45/PM2.5-88502 - 88502/1 Hr/3
- Galveston Airport C1034/PM2.5-88502 - 88502/1 Hr/3

(dev) sfc pm25 32H VALID 14Z 23 SEP2013 [$\mu\text{g}/\text{m}^3$]

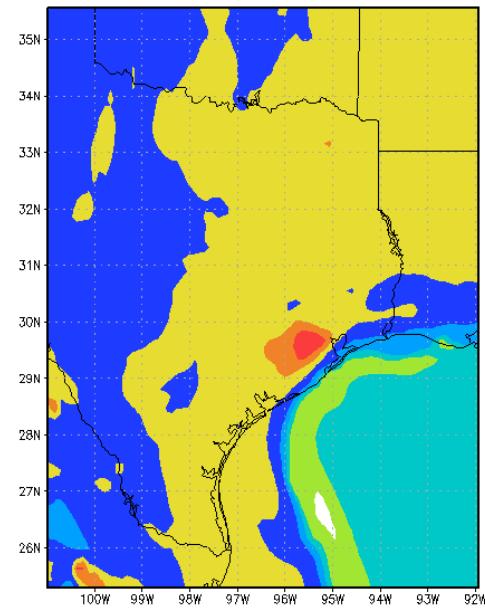
9 am



MONDAY

(dev) sfc pm25 35H VALID 17Z 23 SEP2013 [$\mu\text{g}/\text{m}^3$]

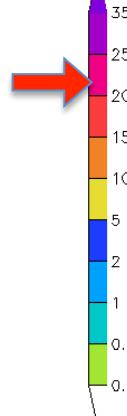
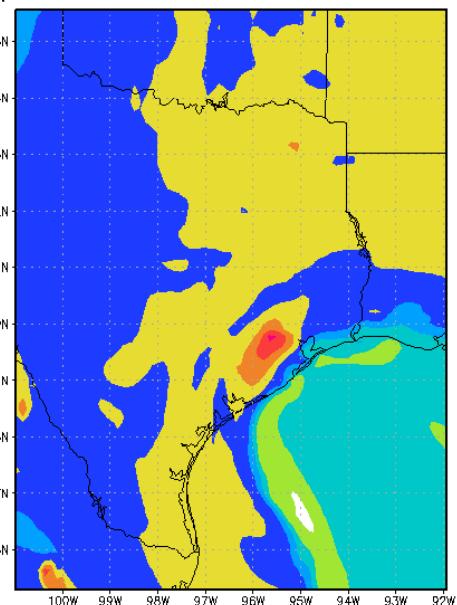
noon



**NOAA
Experimental
CMAQ Surface
Pm 2.5**

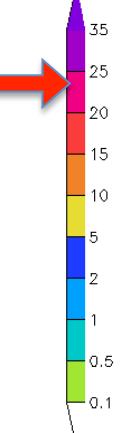
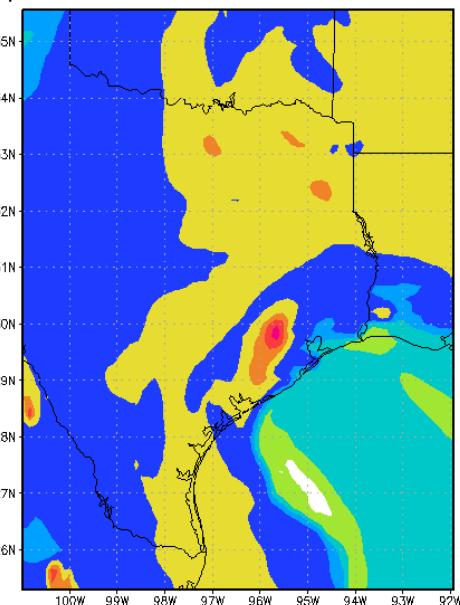
(dev) sfc pm25 37H VALID 19Z 23 SEP2013 [$\mu\text{g}/\text{m}^3$]

2 pm

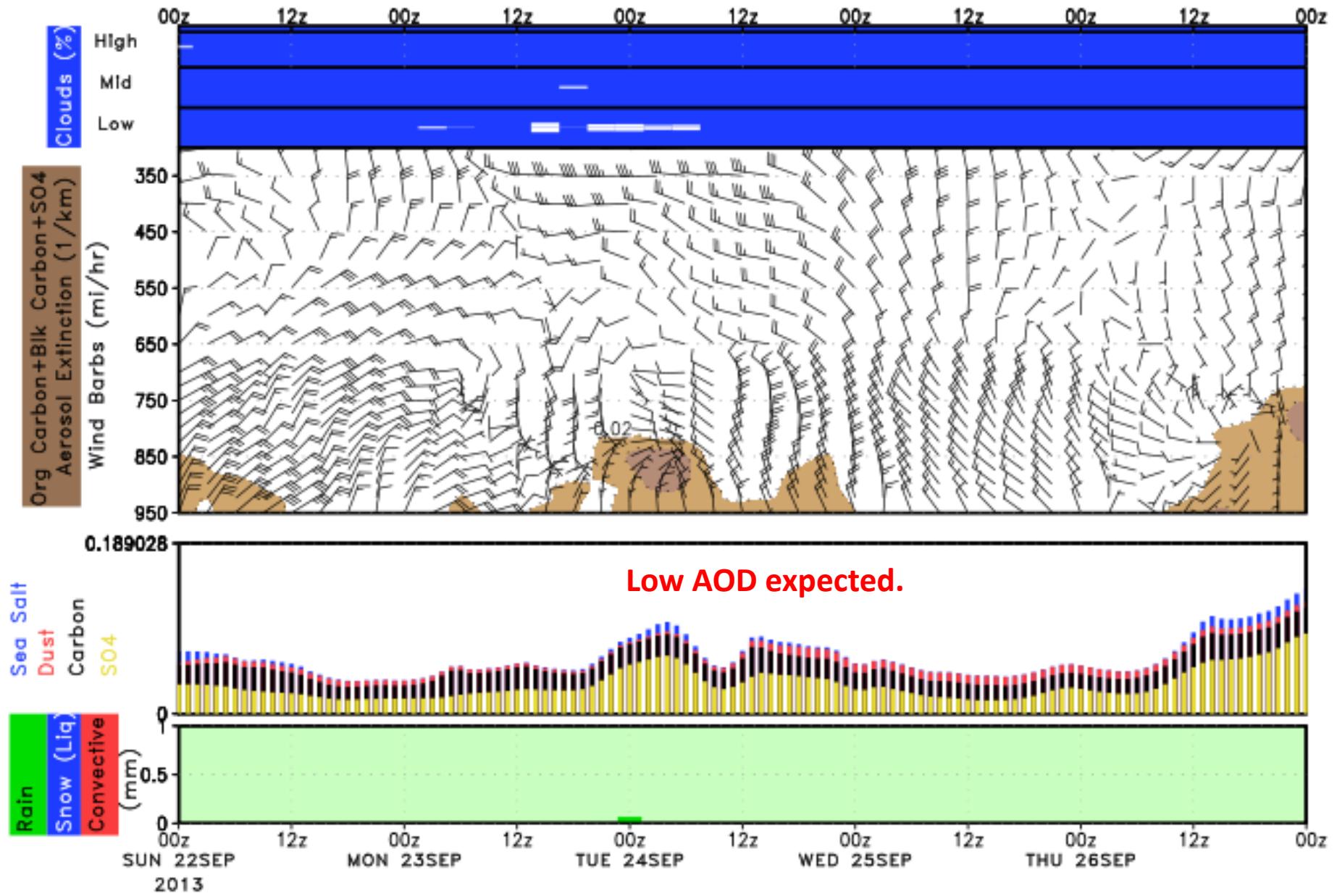


(dev) sfc pm25 40H VALID 22Z 23 SEP2013 [$\mu\text{g}/\text{m}^3$]

5 pm



CONROE



GALVESTON

